The American Biology Teacher

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THE AMERICAN BIOLOGY TEACHER

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Summer Biology Course for High School Students

BEATRICE BUZZETTI
High School, Bremerton, Washington

Because Bremerton is a biologist's heaven, offering both salt and fresh water life, and climatic zones ranging from Sonoran to Alpine right in our back yard; and because high school students are so enthusiastic about field work in Biology, I have long wanted to experiment by teaching an advanced biology course in our summer school. During the school year of 1946–1947 interest in Biology reached such heights that I decided to make that dream a reality.

Eight students enrolled, four boys and four girls. The course ran for six weeks, six hours per day and a full year's credit was given. In planning my subject matter I decided to "feel my way" grasping everything of a biological nature which presented itself but stressing Taxonomy (especially classification of wild flowers) and Ecology.

A large Gingko tree in Bremerton produced the stimulus for a brief history of the evolution of the plant kingdom. This was further enhanced by a days trip to the University of Washington Arboretum. A fruiting fig tree formed the basis for a study of fruits, using the fig as an example of an unusual fruit. Because of the necessity of insect pollination of the fig, we then went into a brief study of harmful and beneficial insects. Newspaper headlines of the approach of an exceptionally low tide called for a lecture on the Planetesimal Hypothesis of the origin of the earth followed by a detailed explanation of how tides are formed. On three successive days we roamed the low tidelands, each day bringing back a host of new materials for classification. Wild flowers were ever present and their study filled in all the gaps. The students positively "devoured" taxonomy. To them it was a game. The Mountaineers property beyond Kitsap Lake proved to be the most fruitful ground near Bremerton for ferns and flowers.

When I first began planning the course I thought how wonderful it would be to spend a week in the Olympics but "No, such a trip would be too great a responsi-

bility." As time went on I realized that I could not afford to cheat these deserving students out of such a trip. The Olympics would bring forth many new flowers, would be a most interesting spot to study forest ecology and such enthusiastic students should get a taste of camping. We began planning at once. The United States Forest Service sent us literature on forest ecology and by the end of five weeks the students were well armed with a basic knowledge which would make their trip worth while.

Lower Lena Lake was chosen for our camp site. This requires packing in for two miles. Besides producing about one hundred new flowers, this final week in the Olympics opened up a new world to eight students. None of them had camped or climbed before. Their sincere interest made cooperation second nature to them. When told that we must start by seven a.m. on our highest climb, we found ourselves well on our way by six a.m.

Some of the following are remarks they made:

"I never dreamed that climbing could be so thrilling."

"The mountains are so beautiful."

"How can there be so many different flowers in such a small area?"

"The out-of-doors is so much more interesting when one can name the flowers."

"I'm so glad I'm taking this course."

"Think what all the others of our last years class are missing!

Please remember that when I prepared my next days work I was getting ready for six regular school days in biology; preparing to teach brilliant students who wanted to be busy every minute. Since I had taught most of them in General Biology, I could not repeat my "old line." Truly I did nothing but teach, study, and sleep for six weks but it was fun, and most gratifying to note their appreciation. I feel that my life will be much richer for the experience of working so closely with such fine students.

CHICAGO MEETING

THE EXECUTIVE BOARD, REPRESENTATIVE ASSEMBLY and various committees met on Monday, December 29. Space does not permit a detailed account of the business transacted, but a few of the more important actions will be reviewed here. Certain items will be considered in detail in future issues.

Membership in the *Cooperative Committee on the Teaching of Science and Mathematics* was continued, with Prevo L. Whitaker as the representative.

Much time was spent in the financial and membership problems of the organization. Rising printing costs and other expenses require stringent curtailment of all unnecessary expenses and increase of membership and other revenues.

Miss Lucille Evans offered her resignation as chairman of the national membership committee: Miss Frances Gourley was selected to replace her.

Mr. O. D. Roberts offered his resignation as managing editor, to take effect at the end of the current school year. Mr. Irving Keene was elected to take his place, and to act as assistant managing editor in the meantime.

The Nominating Committee reported the results of the election; the list of new officers is to be found on page 17 and also on the Staff Page.

Dr. Zwemer, secretary of THE NATIONAL RESEARCH COUNCIL, reported on the plans for the formulation of the *American Institute of Biological Sciences;* although the NATIONAL ASSOCIATION OF BIOLOGY TEACHERS is not eligible to immediate membership, the association was invited to send an observer to the organizational meeting of the Institute. The possibility of affiliation was

discussed, and Dr. Oscar Riddle was selected as the representative.

Tentative plans for the next annual meeting were discussed; the next meeting will likely be a joint meeting with the National Science Teachers Association, the American Nature Study Society and the National Association for Research in Science Teaching. The plans call for a joint general session during the forenoon of each day and separate meetings of the four cooperating organizations in the afternoon. One general banquet session will be held. The place of the meeting was not decided, but Washington and Philadelphia were most favored.

Affiliation with the *National Society for Medical Research*, which was proposed at the business session last year, was approved.

The Nominating Committee for 1949 officers was appointed by President Michaud; it consists of Miss Helen Trowbridge, chairman, Mr. Irving Keene and Mr. Prevo L. Whitaker.

The NABT page in *Nature Magazine* was highly commended and Dr. E. Laurence Palmer was selected to continue as editor of the page.

A dues increase of 50c per year was approved, to be put into effect for 1949 if necessary at that time, at the discretion of the Executive Board.

Both program sessions on December 30 were well attended and the speakers well received. *The American Biology Teacher* will try, as in the past, to bring its readers as much as possible of the program sessions. It is obviously impossible to give papers by publication in the same spirit they were given in person by their authors; however, some of them will be printed in full and most of them in part. One or two were of such a nature that printing is not practical.

The banquet was the closing event of the annual meeting. President Palmer presided and introduced the speaker, Dr. A. L. Winsor of Cornell University, who spoke on some of the problems having to do with the improvement and maintenance of the supply of science teachers. This address will be printed in full in an early issue.

THANK YOU

Just a note of thanks to the retiring secretary, M. A. Russell, Royal Oak, Michigan. "Merl" took over the duties July 1, 1944, succeeding George E. Jeffers, and has carried on the work of the office with the best of efficiency and cooperation throughout the three and a half years of his incumbency. The secretary-treasurer is an exceedingly important person in the mechanics of such an organization as ours. He must be intensely interested, but this is not enough. He must also have peculiar abilities and aptitudes for an exacting job. This little note is an official expression of thanks to you, Merl, for a difficult task well done.

THE NEW SECRETARY

The masthead this month bears the name of JOHN HARROLD as Secretary-treasurer. The new incumbent is a biology teacher in Midland High School, Midland, Michigan. He is a graduate of the Western College of Education at Kalamazoo, Michigan, and holds a Master of Science degree from the University of Michigan. He has been interested in the organization for a long time and can be counted on to continue the fine administration of the secretarial affairs turned over by Merl Russell. This is your official welcome, John, to one of the toughest jobs in the association.

SPORES, POLLEN GRAINS, BUTTERFLY WING SCALES, and many other relatively dry objects can be mounted permanently by sprinkling them on slides that have been freshly coated with clear fingernail polish. Allow time for thorough drying and apply a cover glass in the usual way.

EXCESSIVE ALGAE in an aquarium do no damage to the animal life in it, but cause an unattractive appearance. Usually the condition is due to excessive sunlight; if the aquarium is so located that it cannot readily be moved it can be protected by covering the exposed sides with paper. It may be necessary to cover the entire aquarium for a day or two.

CONCERNING THE STAFF

At this opening of the tenth volume of *The American Biology Teacher*, perhaps a bit of history is not out of place. The editorial staff is the topic of the history. Some forty-odd persons have served on this staff during the life of the journal. Of the original editorial staff listed in Volume 1, number 1, October, 1938, six members are still doing active duty as associate editors. They are PHILIP E. FOSS, *Hartford, Connecticut*, CHARLES C. HERBST, *Beverly Hills, California*, RUTH SHERMAN STEIN, *Los Angeles, California*, J. A. TRENT, *Shawnee, Oklahoma*, B. BERNARR VANCE, *Dayton, Ohio, and* GUY F. WILLIAMS, *New London, New Hampshire*. One other member of the original editorial staff, M. A. RUSSELL, has served continuously in some official capacity; he is a past president and has just completed a term of service as secretary-treasurer. Three others who were appointed to the editorial staff during the first year of the journal are still active associate editors: RUTH A. DODGE, *Johnstown, New York*, MELVIN A. HINTZ, *South Milwaukee, Wisconsin*, and RAY KENNELTY, *Philadelphia, Pennsylvania*.

Whatever success *The American Biology Teacher* may have enjoyed in the past has been due in a large measure to the local cooperation of a fine editorial staff; the editor-in-chief wishes to take this opportunity to call special attention to the above group and to invite all readers to give them a special hand. None of the above mentioned staff members has ever failed to do any job the editor asked of him; all of them have volunteered many services. It is of such stuff as they have contributed that educational journals are made.

JOHN BREUKELMAN

MINNOWS AND OTHER FISHES collected for the aquarium must be brought to room temperature gradually; sudden changes in temperature, especially upward changes, will kill most species. Bring the fish home in a large pail or tub and leave them in the pond water or lake water over night, thus giving the fish time to acclimate themselves.

DO NOT USE RUBBER CEMENT for paper mounts that you wish to have permanently. Even if applied to both surfaces according to instructions, the adhesive will let loose in a few months or years, especially if the mounts are stored in a place where the temperature varies much. For permanent mounts of photographs, drawings, etc., use library paste or glue, and keep the mount under pressure until the adhesive has had time to dry.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH, 3, 1933, AND JULY 2, 1946

Of *The American Biology Teacher*, published monthly October to May, inc. at Lancaster, Pennsylvania.

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher: JAMES F. MCCARTHY, Lancaster, Pennsylvania
Editor: JOHN BREUKELMAN, Emporia, Kansas
Managing Editor: O. D. ROBERTS, Oak Park, Illinois
Business Manager: *none.*

2. That the owner is:
THE NATIONAL ASSOCIATION OF BIOLOGY TEACHERS.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are:
None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear on the books of the company; also that the said two paragraphs contain statements embracing affiants full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear on the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

JOHN BRUEKELMAN
Editor

Conservation Series, Unit VII

Soil Conservation Education in Public Schools

ADRIAN C. FOX
United States Soil Conservation Service, Lincoln, Nebraska

Our boys and girls must have an opportunity to develop conservation concepts, attitudes and habits. In other words, a way of life. If children are to have an opportunity to develop a conservation philosophy, training must start early and be continued throughout the formative period of their lives. The forming of sound conservation concepts, attitudes and habits in youth is, therefore, an educational process and must be provided in the curriculum of our public schools. There is no better approach.

The national need for conservation education is easily understood when we consider the facts of erosion damage. For illustration, consider the following:

1. In the United States we have ruined approximately 50,000,000 acres of cropland for further practical cultivation.
2. An additional 50,000,000 acres are in almost as bad shape.
3. Another 100,000,000 acres are definitely impoverished by erosion.
4. And on yet another 100,000,000 acres, erosion is actively underway.
5. All soil losses from erosion in the United states total approximately 5,400,000,000 tons annually.
6. The Mississippi River annually pours some 730,000,000 tons of soil into the Gulf of Mexico. At flood time, this discharge is about 40,000 tons a minute, or enough to cover a 40-acre farm with nearly 7 inches of soil.

These figures are astronomical, but wait until we translate them into dollars and cents. Erosion loss of 3,000,000,000 tons of soil material from farm lands, containing available and potential plant nutrients, is $3,000,000,000. The direct cost to farmers is $400,000,000. Damage is done to highways, railroads, reservoirs, navigable streams and harbors, irrigation ditches, drainage ditches, and to wildlife. The estimated annual cost is $3,844,000,000.

It is, therefore, obvious that soil is a priceless resource. Unless we teach the boys and girls of today the importance and need of conserving our soil, future generations must live in a depleted land.

It would seem that the introduction of conservation education in the public school curriculum would be relatively simple. Apparently, this is not the case as there has been no widespread adoption of a soil conservation education program in the public schools. This fact was brought out in 1945 when conservationists from the U. S. Soil Conservation Service, educational administrators, writers, teachers, and others met at several places in the United States to study the need for conservation education. The conferees agreed that conservation education should be taught in all elementary and secondary schools. They also recognized a number of existing obstacles retarding progress in conservation, as follows: (1) the lack of properly trained teachers to teach conservation; (2) the lack of proper provisions for conservation in school curricula; (3) the lack of adequate textbooks, teaching outlines, supplementary readers and audio-visual aids.

The first two obstacles are problems for educational administrators and teachers, the latter is one for educators, conservationists, textbook writers, publishers, commercial producers of audio-visual aids and others.

We prepared the following seven pages of illustrated articles on erosion and soil and water conservation in the hope that they will be of some small assistance to biology teachers in teaching conservation. There is a real and urgent need for teaching aids. Everyone should help to implement conservation education by providing them. Why? *Because the topsoil of this country is fundamentally the basis of all life.*

AN ABANDONED FARM HOME

The windows in this abandoned farm home have been broken and doors hang from broken hinges. The windmill has blown off the tower. A sand dune has drifted against the barn. Drifting sand has formed dunes in the farm yard and fields. Like tiny knives, small grains of sand, carried by strong winds have cut the paint from the buildings.

Can you tell why this farm home has been abandoned? People usually live where they can make a living—feed, clothe and educate their children, and enjoy some of the comforts of life. Wind erosion has ruined the fields and crops, so the family cannot exist on this farm. They had to abandon their home and move away in search of another.

Poor land makes poor people. *Not a very pleasant thought, is it?* Remember too—a careless farmer may also make poor land.

There is nothing more desolate and forlorn than an abandoned farm home, especially if it is in the midst of waste due to man's misuse of the land. There are thousands of abandoned farm homes like this in the United States. Many of them are due to man's abuse of the land and his failure to use it the way nature intended.

How can such waste be avoided? Soil loss caused by erosion may be avoided by proper use of the land and by using soil and water conservation practices.

A GROWING GULLY

What caused this gully? It was caused by muddy water flowing from the bare barnyard into a natural drainageway. The livestock had trampled the soil and eaten all of the grass in the barnyard, here was no grass, so the water ran off fast and carried soil with it. It was more than the drainageway could carry. The grass in the drainageway, which used to prevent erosion, had been grazed too closely and was no longer thick enough to resist the cutting action of fast-flowing water loaded with silt. Running water, like a runaway coaster wagon, gains speed as it flows down a slope. As it gains more speed it cuts away more soil. That is why the gully is deeper and wider near the bottom of the slope.

Will the gully grow larger? Yes. Run-off water will keep on cutting soil away until a deep, wide gully is between the house and the barn. This gully has been cut to a depth of two to twenty feet in a distance of 200 feet.

This will give you some idea of the power of flowing water. When we harness water and put it to work generating electricity, irrigating our crops, and supplying our villages, towns and cities with water for drinking, fire protection, recreation, etc., we are using it for the benefit of mankind. This is conservation, or use without waste. When we graze our grass too much, farm up and down hill, and burn and cut our trees, so the water can rush off the land, then we are wasting not only the water but also the soil and plant foods in it. This is misuse and waste.

Can the growth of this gully be controlled? Yes. If a new site can be found, a new drainageway can be built to carry the run-off water. This new drainageway must be protected by a dense cover of grass to prevent soil loss. It may be necessary to fence out livestock in order to protect the grass. When the drainageway has been made ready, the run-off water can be diverted to it by a dike. Another way is to level off the gully and seed it to grass so that it can still serve as the drainageway. If this is done the run-off water must be diverted to a temporary drainageway until the rebuilt one is well protected by grass.

Another method that is sometimes used is to build an earthen dam so that some of the run-off water is held in the gully. Such a dam must have a well-grassed spillway so that the pond may overflow without damage. The gully may thus become a pond useful to the farmer for irrigation, stockwater, fishing and swimming. But, the pond may fill with silt unless soil erosion is controlled on the land from which the water drains.

To control and stop the growth of gullies after they are once started takes time, labor and money. The cost of damages already done may be even greater. *"An ounce of prevention is better than a pound of cure,"* is an old proverb that applies to land as well as to people.

GULLIES

Gullies like these do great damage. If their growth is not stopped, they may destroy the farm. They may cause the farmer to abandon his land and leave the community.

What causes gullies? Gullying is caused by running water. How fast gullies grow depends on the intensity of rainfall, steepness of slope, kind of soil and how the land is used. Water erosion is generally greatest during heavy rainfall on easily eroded soil with steep slopes. To prevent gullying, one must use land right (that is, according to its capability), maintain a good cover on the surface, and use other soil and water conservation measures as they may be needed. Using land according to its capabilities means to treat each acre according to its needs and using it according to its ability to produce safely the type of crops for which it is best suited.

What are some of the misuses of the land that help to cause gully erosion? Man has done many things to the land to hasten gully erosion. Those most common and causing the greatest erosion include:

1. Cutting or burning the trees off steep forested land.
2. Plowing up grass on land which is too steep, sandy, infertile, or dry for crops.
3. Grazing too many livestock on steep hilly pastures and rangeland. Trampling of the soil by livestock adds to the damage.
4. Burning of protective soil cover such as grass, brush, grain stubble and weeds on cultivated fields, woodland, rangeland and meadows.
5. Farming up and down steep slopes. Plow and cultivator furrows serve as drainage ditches to carry run-off water and soil down the slopes.
6. Having feedlots on steep slopes. The cattle and hogs trample the soil and help to speed up run-off and erosion.
7. Leaving cultivated cropland bare of protecting crop residues and cover crops during critical periods after harvest.
8. Using farming practices that rob the soil of water-retaining organic matter.
9. Neglecting to seed grass for protective cover in drainageways that carry water from the fields.

CORN CULTIVATED UP AND DOWN HILL

These straight corn rows were planted and cultivated up and down hill. The spaces between the rows have become drainage ditches that carry off the water. As the water raced down the slope it carried away topsoil and seed. Plant foods contained in the lost topsoil were also lost along with the water that caused the erosion. If fertilizers and lime were used, they too were carried away. Notice how wasted soil has covered the field in the foreground. Notice the beginning of deep gullies. Gullying is the most destructive kind of erosion.

Will erosion caused by planting row-crops up and down hill have other effects? Yes indeed! The loss of water, plant food and topsoil year after year will reduce the yield of corn and forage. If plowing, planting and cultivating up and down hill continue, the field will become cut up by deep gullies. Then it will no longer be worth farming.

Poor land means poor crops.

How can soil losses be stopped? One of the best means of reducing soil losses on many fields is by farming—plowing, planting, and cultivating—on the contour. Contour farming is farming on the level around the hills, or across the slopes, instead of up and down hill.

CORN PLANTED ON THE CONTOUR

These corn rows wind around the hillside "on the level." When they are cultivated the tractor is always on the level instead of operating up and down hill. This saves power, fuel, and is easier on machinery.

What are some of the other advantages of cultivating on the contour? The most important advantage is that soil is saved. This method of planting crops and cultivating is known as farming on the contour. When this is done we have a series of hundreds of little dams on the slopes and hillsides. When the rain comes, most of the moisture is held on the hillside and the washing away of soil and plant food is controlled. Contour cultivating not only saves essential plant food, but also valuable moisture which is needed during the growing season. Contour farming, by holding water where it falls, helps control water erosion and floods. Farmers who have planted and cultivated their row crops on the contour report increased crop yields. In fact, record yields have been produced on contoured fields.

IT PAYS TO FARM ON THE CONTOUR.

EDITOR'S NOTE: This is a continuation of the *Conservation Series* started three years ago by the Conservation Committee. The previous units were as follows:

I. *Seven Keys to Wildlife Conservation*, E. LAURENCE PALMER

II. *Our Nation's Health Lies in the Soil*, OLLIE E. FINK

III. *Conservation of Fishes*, HOWARD H. MICHAUD

IV. *Biology and the Soil*, F. OLIN CAPPS

V. *Wild Flower Conservation*, P. L. RICKER

VI. *The Introduction of Natural Resource Planning into Our Schools of Today*, RICHARD L. WEAVER.

Keep the raindrops where they fall, or make "running water walk"

WHICH WOULD YOU DO?

You have studied the disadvantages of farming up and down hill as compared to the advantages of farming on the contour or "on the level." You know now that one is a bad farming practice, the other a conservation practice.

The following points show clearly some of the differences between these two practices: The above drawing will be helpful in making some of the comparisons.

UP AND DOWN HILL CULTIVATION CAUSES

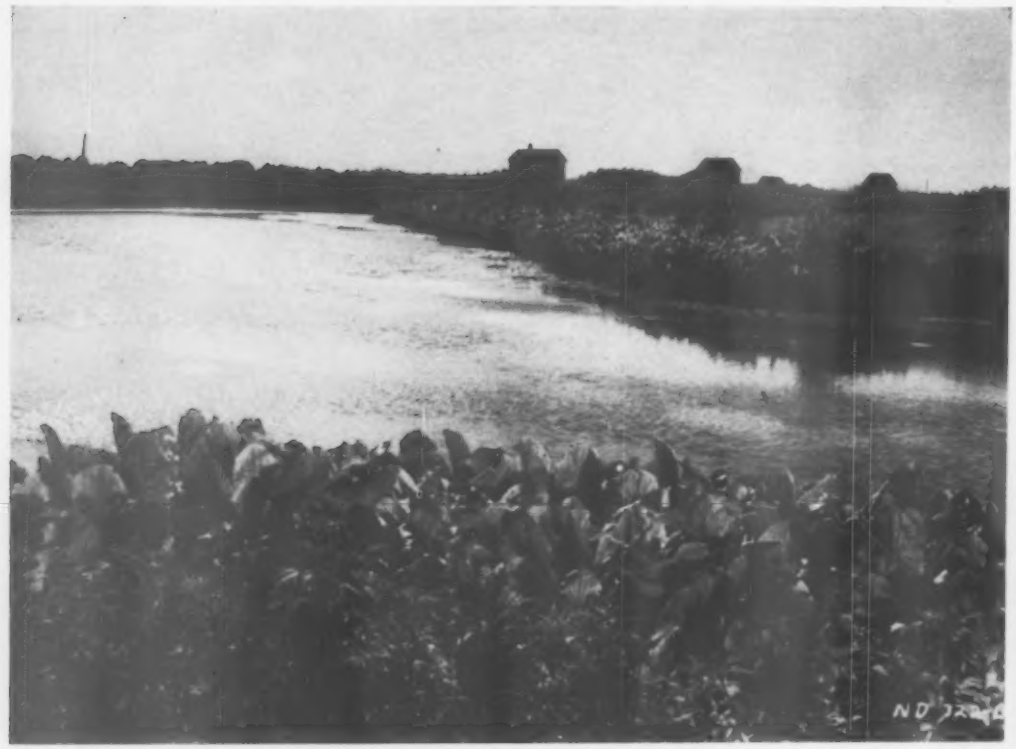
1. Loss of run-off water.
2. Loss of fertile topsoil.
3. Loss of fertilizer and lime.
4. Loss of horse-power.
5. Smaller crop yields.
6. Gullies.
7. Greater floods.
8. Greater strain and wear on farm machinery.
9. Increase in tractor fuel needs.

"ON THE LEVEL" OR CONTOUR CULTIVATION

1. Keeps more water on the field for crops.
2. Saves fertile topsoil.
3. Saves fertilizer and lime.
4. Increases crop yields.
5. Reduces run-off which helps to reduce floods.
6. Helps to reduce water erosion.
7. Reduces strain and wear on farm machinery.
8. Reduces cost of tractor operation.
9. Saves horse-power.

Which would you do? Farming on the contour is a soil and water conservation practice. *Do you think it pays?*

The cartoon is by the courtesy of the Colorado Extension Service.



WATER-SAVING DAM

Here we have a pond formed by an earthen dam, which is in the distant background. The dam was protected from grazing, and for this reason it is now covered with grass which prevents any damage by water erosion. The dam holds back run-off water to form a pond in a farm pasture. It is properly built. Even during heavy rains it will hold most of the water that runs off the slope. The land under water was once a part of an overgrazed pasture.

This earthen dam keeps the water on the farm instead of letting it go downstream. Some of the many advantages to be gained from the pond are:

1. It is a watering place for horses, cows and other farm animals.
2. It helps to prevent floods.
3. It helps to control erosion and stop the formation of gullies.
4. It helps to recharge the underground supply of water from which we get our drinking water. This happens when part of the water in the pond soaks into the ground.
5. It becomes a home for fish which will provide food and fun for the farm family, if the water is deep enough.
6. It will provide food, shelter, and nesting cover for wildlife, if part of the pond is fenced to protect the shore from livestock. Ducks, shore-birds, upland game-birds, song-birds, and other forms of birdlife of interest and benefit to the farmer, will come there to live and feed.
7. It provides a home for muskrats and may even attract a few mink or other valuable fur-bearers.
8. It provides water for garden irrigation.
9. It provides, if part of the shore is planted to trees, an excellent place for the farm family and friends to have picnics.
10. It provides a place for swimming.
11. It provides, in winter, a source of ice which may be stored for summer use.
12. It provides a place for ice skating.

IS NOT THIS POND MORE USEFUL AND BEAUTIFUL THAN POOR PASTURE OR GULLY?

A Cumulative Index?

With this issue we start the tenth volume of *The American Biology Teacher.* The magazines that have cumulative indices frequently publish them at five- or ten-year intervals. Recently several requests for the index to past volumes or for the journal to date have come to the editor's desk; some of these have come from libraries and some from individuals.

There are several considerations in the publication of a cumulative index. How useful will it be? Will it justify the expense involved? Is it to be published as a separate unit, or included in an issue of the journal? How is it to be organized? What should it include?

The annual volume index requires several pages to print; multiply this by ten and you have an idea as to the extent of a ten-year index. There would be some reduction because many of the minor items of the annual index would not be sufficiently important to include in a cumulative one. An index on a purely alphabetical arrangement, as the annual one is except for the *Books Reviewed* portion, would be much less useful when the period is extended over several years, because the reader would not be looking for articles by certain authors, but for articles on certain fields. Considerable analysis of the articles and materials in the journal should precede the organization of a ten-year index. Perhaps a committee should be established, from interested readers and members of the staff, to work out this part of the problem.

This matter will be brought to the attention of the editorial board at the Chicago meeting. The editor would appreciate the opinions of an extensive group of readers as to the feasibility, desirability and possible organizational plan of a cumulative index—provided one is desired.

New Officers

The results of the election of officers of THE NATIONAL ASSOCIATION OF BIOLOGY TEACHERS for 1948 have been received from the secretary-treasurer. The elected officers, who have assumed their duties as of January 1, 1948, are as follows:

President: Howard H. Michaud, Purdue University, Indiana.

President-elect: Ruth A. Dodge, Johnstown High School, Johnstown, New York.

First Vice-President: Warren L. Bartlett, Brookline High School, Brookline, Massachusetts.

Second Vice-President: Melvin A. Hintz, South Milwaukee High School, South Milwaukee, Wisconsin.

Secretary-Treasurer: John Harrold, Midland High School, Midland, Michigan.

The new president needs no introduction to readers of *The American Biology Teacher.* He has been an active member of the association and a contributor to the journal from its very early days. One of his early articles, *Importance of Field Work for the High School Teacher,* appeared in the March, 1941, issue. He was then a teacher of high school biology in Fort Wayne and Chief Naturalist of the Indiana State Parks. His contribution, *The Teaching of Ecology, From the Biology Teacher's Standpoint,* was the concluding number of a symposium on the teaching of ecology presented before the annual meeting at Boston, December 28, 1946. He has published many articles and appeared on many programs; he is well known throughout his section of the country

as an inspiring teacher and a leader in general education, as well as a progressive biologist. The association is indeed fortunate to have as its leader a vigorous young man with such a record of achievement and service

Biographical sketches of the other officers appeared in the October issue. All of them have been active workers in THE NATIONAL ASSOCIATION OF BIOLOGY TEACHERS, having served on various committees and performed many special duties. All of them are leading teachers in biology in their respective states and areas. Each of them has broad interests and a comprehensive range of activities. The editorial staff extends on behalf of THE NATIONAL ASSOCIATION OF BIOLOGY TEACHERS and *The American Biology Teacher* congratulations and best wishes.

Books

STRAUSBAUGH, PERRY D. and WEIMER, BERNAL R., *General Biology,* second edition. John Wiley & Sons, New York. vii + 718 pp. illus. 1947. $4.75.

This thoroughly revised edition of a widely used text presents the fundamentals covered in the more extensive courses in general biology. The general plan of the previous edition is retained, but most of the chapters have been extensively revised and some parts completely rewritten. An outstanding feature of the book is its excellent illustrations. Many have been redrawn and some new ones have been added. The photographs are not merely pictures to lend atmosphere to pages, but are selected to bring out specific points. There is an unusual group of colored illustrations, both as to number and quality. The typography and format are good. The boldface printing of technical terms at their first mention and the arrangement of headings and subheads are calculated to aid the student in grasping important points. College students should find it relatively easy to read and comprehend; the book should make a good reference for high school teachers and their more interested pupils. The text is extensive enough for a full year course; the continuity of presentation is such that some difficulty may be encountered in trying to adapt it to a semester or term course. This is both an advantage and a disadvantage; the resourceful teacher can adjust most any book to his needs. This book presents biology as a unified and continuous story, and it would seem difficult to omit portions without breaking the unity. This reviewer does not like the combined glossary-index, although he admits that it is a space saver. His only other criticism is that the chapters are too long; this is however a purely personal peeve which in no way affects the quality of what is in the chapters. With its increased stress on basic principles and its excellent organization and presentation, *General Biology* should further extend its already wide acceptance. It is a fine book.

MAVOR, JAMES W., *Laboratory Exercises in General Biology,* 3rd ed. The Macmillan Company, New York. 1947. 333 pp. $3.25.

This laboratory manual combines the features of the traditional direction sheets and the work book by separating them into two sections, the *Instructions* and the *Work Sheets.* The Instructions are organized into 30 units, which average about a week's work in courses with two lab periods per week. The Work Sheets are perforated and punched for the standard three-ring notebook. There are spaces for drawings, partly completed drawings, tables to be filled in and spaces for recording various types of information. These sheets are so arranged that their subdivisions correspond by number to the subdivisions of the instructions. The general organization is as follows: the microscope, general exercises on classification, the cell and simple plants and animals, types of plants, types of animals, the various organ systems, embryology, heredity, pond life, fossils. There is a good balance between principles and types. The manual is designed for closely integrated work with the Mavor text in general biology (reviewed in the November 1947 issue, page 312, in which the word "not" was unfortunately omitted from the last sentence, which should have read "Intended for college classes this book is an excellent refer-

ence for high school teachers and is not beyond the abilities of an advanced or specially interested high school student.") and used with it will insure a higher degree of coordination between class and laboratory work than is generally achieved. The coordination is so well worked out that it would no doubt be difficult to use this manual with another text, unless its organization were very similar to that of Mavor.

JOHN BREUKELMAN

NEW FILMS

CORONET

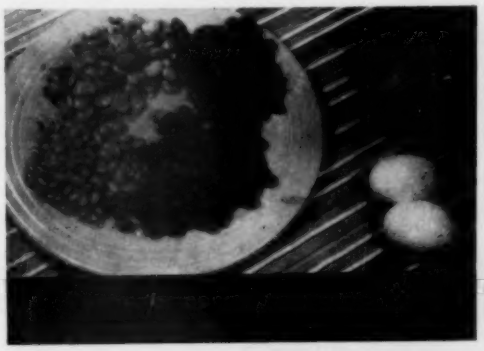
Coronet Instructional Films has announced completion of five new productions, in the fields of Natural Science, Social Science, Physical Science, and Health and Safety. The biology films, *Butterfly Botanists* (1 reel, sound, color or black and white; Collaborator: Edwin Way Teale, Naturalist) shows students the life processes of a typical butterfly, the Monarch; stressing the dependence of larvae on plant food, the stages of development of various species and their methods of hibernating, and finally, the economic importance of all butterflies. It is valuable as a readiness and conceptual device for general science or biology students at the upper elementary, junior and senior high school levels.

POPULAR SCIENCE

The subjects of food and nutrition are treated in two new teaching aids—a filmstrip series and a slide set, both in color—now available from the Audio-Visual Division of Popular Science Publishing Company, 353 Fourth Avenue, New York. Both are for upper elementary and junior high school classes in Health Education, General Science, Domestic Science and Home Economics. The filmstrip series, entitled *Food and Nutrition*, consists of five strips, each approximately 50 frames in length: The Essentials of Diet; Eat Well! Live Well!; The Nutrients in Food; How Food is Digested; Consumer Problems in Nutrition. Combined use of original color photographs and art work in color within a single filmstrip is a unique advance in the handling of the medium. Each original photographic scene is especially staged for the filmstrip. The slide set, also entitled *Food and Nutrition*, consists of 50 Kodachrome photographs and cartoons. Both filmstrips and slides deal with selection of foods, food nutrients, essentials of diet, consumer problems and other food aspects. Before release in their final form, both were previewed by classroom teachers and edited by nutrition experts.

A frame from *How Food is Digested*

Functional teaching guides accompany the filmstrip series and the slide sets. The entire series is $25.00; each filmstrip is $5.00. The set of 50 color slides is $25.00.



A slide from the *Food and Nutrition* set of 50 Kodachromes

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Articles are scheduled for publication in approximately the order of acceptance of the manuscripts. Generally the journal is tentatively arranged about three or four issues ahead, and there are under consideration at any time enough manuscripts for about two or three more issues. Some space is of course allowed for news items and articles of a seasonal nature. On the average, a manuscript submitted this month may expect to find its way into print, if it is accepted promptly, in about April or May. Many seasonal papers have to be postponed an entire year, simply because the author has not allowed the necessary four to six months that intervenes between acceptance and publication.

For details concerning titling, headings, references, illustrations, etc., consult *Preparation of Manuscripts for Publication*, which appeared in the October, 1943, issue of THE AMERICAN BIOLOGY TEACHER. A limited number of reprints is still available; copies may be obtained from the editor.

Manuscripts may be sent to the editor-in-chief or to any one of the associate editors. A complete list of the latter appears in each October and February issue.

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DORMANCY may be broken in potato tubers by placing them for a few seconds in boiling water before planting them.

When the BIOLOGICAL SUPPLY HOUSE sends the newest edition of its catalogue, don't throw the old one in the waste basket, for it contains a lot of pictures, clippings, diagrams, photographs, formulas, etc., which may be of value in class or laboratory.

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